

Remarks

Status of application

Claims 1-3, 5-8, 10-19, 21-24, and 26-30 were examined and stand rejected in view of prior art. By this Supplemental Amendment, Applicant has amended independent claims 1 and 17 and certain dependent claims thereof in an effort to more clearly distinguish the present invention from the prior art. In view of the amendments made and the following remarks, reexamination and reconsideration are respectfully requested.

Prior art rejections

Applicant appreciates the Examiner's courtesy of a telephone interview on June 4, 2008. Further to these discussions, Applicant has amended independent claims 1 and 17 to incorporate claim limitations more clearly distinguishing Applicant's claimed invention from the referenced prior art. Applicant has also amended several dependent claims based on the amendments made to claims 1 and 17.

As discussed in detail in Applicant's Amendment filed on April 11, 2008, Applicant's invention provides for creation of a separate read-only "cache view" of a given database that can be used for performing read-only transactions in a manner that avoids the read-only transactions from being blocked by exclusive transactional locks of write transactions. Applicant's methodology also avoids having long duration read-only transactions block write transactions with long duration shared transactional locks.

Applicant's approach provides for creating and maintaining in memory this separate read-only cache view of a given database, in addition to the normal "write" view of a given database (see e.g., Applicant's specification paragraphs [0046]-[0047]). The read-only cache view is created using the transaction log to create a transactionally consistent version of the given database at a particular point in time (see e.g., Applicant's specification paragraphs [0082]-[0083]). Applicant's transactionally consistent read-only "cache view" of the database may be used read-only transactions without blocking the write operations which may be concurrently occurring against the database (see e.g., Applicant's specification paragraph [0015], paragraphs [0046]-[0047], paragraphs [0075]-[0076]).

Applicant's independent claims have been amended to bring these distinctive features to the forefront. For example, Applicant's amended claim 1 includes the following claim limitations:

In a database system employing a transaction log, an improved method for restoring databases to a consistent version supporting read-only uses, the method comprising:
providing a shared cache storing database blocks in memory of the database system;
creating a write view of a given database in the shared cache supporting read and write uses of the given database;
in response to a read-only transaction of the given database, creating a read-only cache view of the given database using the given database's transaction log by logically undoing transactions which have begun but have yet to commit, said read-only cache view comprising particular database blocks in the shared cache that record a transactionally consistent version of the given database at a given point in time supporting read-only uses;
temporarily storing any database blocks that overflow said shared cache in a temporary database during use of the read-only cache view by the read-only transaction; and
performing the read-only transaction using the read-only cache view and returning results of the read-only transaction, without blocking performance of transactions involving write operations using the write view of the given database.

(Applicant's amended claim 1, emphasis added)

As illustrated above, the read-only "cache view" created by Applicant's solution maintains a transactionally consistent view (or version) of a given database supporting read-only uses. Moreover, this read-only cache view may be used for read-only uses without blocking performance of other transactions which may be making changes to the database (e.g., write transactions).

In contrast to Applicant's invention which allows more than one view of a given database, the prior art references (e.g., Hayashi) describe maintaining a single read-write view for a given database at one time. Additionally, with Hayashi's solution, transactional consistency is maintained through the use of a traditional database lock manager which controls concurrent access to Hayashi's read-write cache. However, since Applicant's cache views are read-only views (i.e., used by read-only transactions), a lock manager is not needed for concurrency control. For these and other reasons discussed in detail in Applicant's previously filed Amendment and Appeal Brief

(incorporated by reference herein), Applicant respectfully believes Applicant's invention is distinguishable from Hayashi and the other prior art of record.

As described in Applicant's previously filed Amendment, Loaiza is distinguishable as it provides for constructing a table view of the database log files themselves. Applicant's solution does provide for querying the database log file(s) themselves, but instead creates a transactionally consistent view of the database itself for performing a read-only transaction (Applicant's specification, paragraph [0047]). As previously discussed, a multi-user database environment typically has multiple intermingled write operations occurring against the database, some of which have committed while others are still pending. Applicant's invention uses logical undo to get the database to a transactionally consistent state suitable for performing long-duration read-only transactions (e.g., DSS, reporting, data mining, or the like). Respectfully, none of the prior art references provide for reconstructing a transactionally consistent view (or version) of a database supporting read-only uses.

All told, the prior art references, either alone or in combination, do not teach the creation of a transactionally consistent cache view of a given database supporting read-only uses as provided in Applicant's specification and claims. Therefore, as the prior art references do not teach or suggest all the limitations of Applicant's claims, it is respectfully submitted that Applicant's claimed invention is distinguishable over the prior art of record and overcomes the rejection Applicant's claims under Section 103.

Any dependent claims not explicitly discussed are believed to be allowable by virtue of dependency from Applicant's independent claims, as discussed in detail above and in Applicant's previously filed Amendment referenced above.

Conclusion

In view of the foregoing remarks and the amendment to the claims, it is believed that all claims are now in condition for allowance. Hence, it is respectfully requested that the application be passed to issue at an early date.

If for any reason the Examiner feels that a telephone conference would in any way expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at 925 465-0361.

Respectfully submitted,

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